TRANSMITTAL SLIP	DATE 6 November 1979
TO: C/SPD	
ROOM NO. 806	BUILDING Ames

REMARKS:

The following represents our Staff's effort (primarily conducted by Sandra [redacted] to solve the case of the stumped stenos. The Spearman rank correlation test was quite conclusive that there is a significant relationship between percentage of successes and the length of the average sentence; the longer the average sentence, the lower the ratio of successes. This suggests, as spelled out in the memo, a line of investigation.

STAT

FROM: [redacted] C/HRAS/OP		
ROOM NO. 1006	BUILDING Ames	[redacted]

STAT

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FORM NO 241 1 FEB 55 REPLACES FORM 36-8 WHICH MAY BE USED. (47)

An analysis was performed to determine if a relationship exists between number of fails in the Shorthand Qualifying test and the sentence structure of individual tests. Data used included total words, number of sentences, number of qualifying employees and total employees tested. A rank correlation indicated a tendency for more stenographers to qualify when using a test with less words per sentence. This suggests the possibility that the speaking speed has been higher in longer sentences. We suggest that the higher success tests (like "J" & "L") be compared with the low success tests (A&E) to see if this is the case. A further factor that needs checking is the apparent variability of results for the same test, administered at different times. Some tests appear to have higher variability than others for reasons we can't isolate (quality of class, phase of moon, sunspots, temperature of room . . .?)

TEST	TOTAL WORDS	NUMBER OF SENTENCES	AVERAGE WORDS PER SENTENCE	NUMBER QUALIFIED	NUMBER TESTED	SUCCESS RATIO
A	240	9	26.67	0	29	00
B	240	11	21.82	6	77	.08
C	240	13	18.46	3	33	.09
D	240	10	24.00	1	28	.04
E	240	10	24.00	0	12	00
F	240	13	18.46	2	39	.05
J	240	11	21.82	12	53	.23
K	240	15	16.00	2	34	.06
L	240	13	18.46	1	9	.11
M	240	13	18.46	1	22	.05

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SPEARMAN RANK CORRELATION TEST

TEST	RANKING: RATIO OF SUCCESSES	RANKING: WORDS PER SENTENCE	(Δ) DIFFERENCE	(Δ^2) SQUARE OF DIFFERENCE
A	9.5	10	-0.5	2.5
B	4	5.5	-1.5	2.25
C	3	2.5	-0.5	.25
D	8	8.5	-0.5	.25
E	9.5	8.5	1.0	1.0
F	6.5	5.5	1.0	1.0
J	1	2.5	-1.5	2.25
K	5	1	4.0	16.0
L	2	5.5	-3.5	12.25
M	6.5	5.5	1.0	1.0

$$\Sigma\Delta^2 = 36.5$$

$$r = 1 - \frac{6(36.5)}{10(99)}$$

$r = .779$ significant at 1%